



Attorney Docket: 152/48811
PATENT

#12
Response
YKobijon
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: YUKIO OHURA

Serial No.: 09/545,520 Group Art Unit: 2834

Filed: APRIL 7, 2000 Examiner: Dang D. LE

Title: ROLLING BEARING FOR PROTECTION OF MAGNETIC BEARING

REPLY AFTER FINAL

Box AF

Commissioner for Patents
Washington, D.C. 20231

Sir:

The following remarks are respectfully submitted in response to the Official Action mailed January 3, 2002.

Claim 1 was rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's admitted prior art in view of Meinke et al. (U.S. Patent 4,091,687). For the reasons set forth hereinafter, it is respectfully submitted that claim 1 is patentable over the cited prior art.

As discussed in the specification, one of the problems associated with the prior art bearing units is that, as shown in Figures 4 and 5, a thrust load F_a , i.e., an axial load, can cause a permanent reduction of the designed gap between the rotor and the inner race of the bearing. The reduced gap may interfere with the proper operation of the magnetic bearings.

Applicant discovered that the problem is caused, at least in part, by the split race. To solve the problem, the bearing unit of claim 1 uses an angular ball bearing that has an integral race.

The prior art ball bearing discussed in the specification and shown in Figures 4 and 5 is used where there are both radial and axial loads. Therefore, the prior art ball bearing is an angular bearing (see specification, page 3, line 10), i.e., a bearing that can support the rotor against both radial and axial directions.

In contrast, the bearing disclosed by Meinke et al. is not an angular bearing because the bearing cannot support the rotor against an axial load. In fact, only a radial load can be transmitted from the rotor to the bearing, and no axial load can be transmitted to the bearing from the rotor. Therefore, the bearing of Meinke et al. cannot be used in the bearing unit shown in Figures 4 and 5 of the present application to support an axial load. Accordingly, the bearing unit of Applicant's admitted prior art cannot be modified with the bearing of Meinke et al.

Although the above discussion alone is sufficient to overcome the rejection, there are also additional separate, alternative grounds to overcome the rejection. For example, in order to combine the teachings of prior art references in an obviousness rejection, there must be a reasonable expectation of success (see MPEP 2143.02). In the present case, there is no reasonable expectation that the bearing unit shown in Figures 4 and 5 of the present application, modified in accordance with the bearing of Meinke et al., can operate properly. In fact, it is certain that a bearing unit so modified would fail because it cannot support the rotor against an axial load. Accordingly, the bearing unit shown in Figures 4 and 5 cannot be modified in accordance with the bearing of Meinke et al.

Further, although the cited prior art does not disclose the use of an angular bearing as recited in claim 1, Applicant would like to point out that even if the bearing unit of the present invention were disclosed by the cited art, there would still be no motivation or suggestion to combine the teachings of the cited art. What motivated Applicant to replace the split bearing race of the prior art with an integrated race is because Applicant discovered one of the problems associated with the prior art is caused by the split bearing race. In the absence

of such motivation or suggestion in the prior art, the teachings of the cited art cannot be properly combined in an obviousness suggestion. Applicant respectfully submits that any obviousness rejection based on the combined teachings of the cited art can only come about as a result of hindsight provided by Applicant's own disclosure. Such hindsight rejection of Applicant's application is prohibited by the law.

In light of the foregoing remarks, this application has been placed in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #152/48811).

Respectfully submitted,

April 24, 2002



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